

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) An exposure method for exposing a second object via a projection optical system with an exposure light beam having passed through a pattern on a first object, the exposure method comprising:

supplying a gas through which the exposure light beam is transmitted, from a tip or interior of the projection optical system toward an exposure area on the second object.

2. (Original) The exposure method according to claim 1, wherein the gas, through which the exposure light beam is transmitted, is aspirated from the exposure area.

3. (Original) The exposure method according to claim 2, wherein a supply passage which supplies the gas through which the exposure light beam is transmitted, toward an optical path for the exposure light beam, and a discharge passage which discharges the gas from the optical path for the exposure light beam are provided between the tip of the projection optical system and the second object.

4. (Original) An exposure method for exposing a second object via a projection optical system with an exposure light beam having passed through a pattern on a first object, the exposure method comprising:

supplying a gas through which the exposure light beam is transmitted, to a space between the projection optical system and the second object; and

controlling a state of flow of the gas depending on a position of a stage which positions the second object.

5. (Original) The exposure method according to claim 4, wherein a flow rate of the gas is increased when an exposure area on the second object is set at an end of the stage.

6. (Original) An exposure apparatus for exposing a second object via a projection optical system with an exposure light beam having passed through a pattern on a first object, the exposure apparatus comprising:

a guide member which is arranged between the second object and the projection optical system and which is provided with an aperture for allowing the exposure light beam having passed through the projection optical system to pass therethrough; and

a gas supply unit which supplies a gas through which the exposure light beam is transmitted, through the aperture of the guide member toward the second object.

7. (Original) The exposure apparatus according to claim 6, further comprising a gas-aspirating unit which aspirates the gas flowing through a space between the guide member and a surface of the second object toward an outer circumferential side of the second object.

8. (Previously Presented) The exposure apparatus according to claim 6, wherein an optical member of the projection optical system, which is disposed at a position closest to the second object, is also used as the guide member.

9. (Previously Presented) The exposure apparatus according to claim 7, further comprising a stage which positions the second object, wherein a height of an upper surface of the stage is substantially the same as a height of a surface of the second object.

10. (Original) An exposure apparatus for exposing a second object via a projection optical system with an exposure light beam having passed through a pattern on a first object, the exposure apparatus comprising:

a stage which positions the second object;

a gas supply unit which supplies a gas through which the exposure light beam is transmitted, to a space between the projection optical system and the second object; and

a control unit which controls a state of flow of the gas supplied by the gas supply unit, depending on a position of the stage.

11. (Original) The exposure apparatus according to claim 10, wherein a height of an upper surface of the stage which positions the second object is substantially the same as a height of a surface of the second object.

12. (Previously Presented) The exposure apparatus according to claim 6, wherein the exposure light beam is a light beam in a wavelength region in which the light beam is greatly absorbed by oxygen, and the gas is chemically inert, from which any impurity is removed.

13. (Currently Amended) A method for producing an exposure apparatus for exposing a second object via a projection optical system with an exposure light beam having passed through a pattern on a first object, the production method comprising:

~~arranging-providing~~ the projection optical system;

~~arranging-providing~~ a guide member ~~provided-with~~ having an aperture for allowing the exposure light beam having passed through the projection optical system to pass therethrough, at an end of the projection optical system on a side of the second object; and

~~arranging-providing~~ a gas supply unit which supplies a gas through which the exposure light beam is transmitted, the gas supply unit supplying the gas toward the second object through the aperture of the guide member.

14. (Currently Amended) A method for producing an exposure apparatus for exposing a second object via a projection optical system with an exposure light beam having passed through a pattern on a first object, the production method comprising:

~~arranging-providing~~ the projection optical system and a stage which positions the second object;

~~arranging-providing~~ a gas supply unit which supplies a gas through which the exposure light beam is transmitted, the gas supply unit supplying the gas between the projection optical system and the second object; and

~~arranging-providing~~ a control unit which controls a state of flow of the gas supplied by the gas supply unit, depending on a position of the stage.

15. (Previously Presented) A method for producing a device, comprising the step of transferring a device pattern onto a workpiece using the exposure method as defined in claim 1.

16. (Previously Presented) The exposure method according to claim 4, wherein the gas, which is supplied to the space between the projection optical system and the second object, is discharged.

17. (Previously Presented) The exposure method according to claim 16, wherein the supply of the gas and the discharge of the gas are performed at symmetrical positions in relation to an optical axis of the projection optical system.

18. (Previously Presented) The exposure method according to claim 17, wherein the position of the discharge of the gas is changed depending on the position of the stage.

19. (Previously Presented) The exposure apparatus according to claim 10, further comprising a gas discharge tube which discharges the gas supplied to the space between the projection optical system and the second object.

20. (Previously Presented) The exposure apparatus according to claim 19, wherein the gas discharge tube and a gas supply tube provided for the gas supply unit are arranged symmetrically in relation to an optical axis of the projection optical system.

21. (Previously Presented) The exposure apparatus according to claim 20, further comprising:

an interferometer which measures the position in an X axis direction or the position in a Y axis direction of the stage, wherein:

the gas supply tube and the gas discharge tube are arranged in a direction intersecting the X axis direction or the Y axis direction by substantially 45°.

22. (Previously Presented) The exposure apparatus according to claim 19, wherein the control unit controls the state of the flow of the gas by changing a position of the gas discharge tube.

23. (Previously Presented) The exposure apparatus according to claim 19, further comprising a slide unit which shifts a position of the gas discharge tube, wherein the control unit shifts the position of the gas discharge tube by controlling the slide unit.

24. (Previously Presented) An exposure method for exposing a second object via a projection optical system with an exposure light beam having passed through a pattern on a first object, the exposure method comprising:

supplying a gas through which the exposure light beam is transmitted, toward an optical path for the exposure light beam on a side of a tip of the projection optical system in a space between the second object and the tip of the projection optical system; and

aspirating, from the optical path for the exposure light beam, the gas which has flown from the tip of the projection optical system toward the second object.

25. (Previously Presented) The exposure method according to claim 24, wherein:
a guide member, which is provided with an aperture for allowing the exposure light beam to pass therethrough, is provided between the second object and the tip of the projection optical system; and

the gas, through which the exposure light beam is transmitted, flows through the aperture toward the second object.

26. (Previously Presented) The exposure method according to claim 25, wherein the gas is continuously supplied to the optical path for the exposure light beam, and the gas is continuously aspirated from the optical path for the exposure light beam.

27. (Previously Presented) An exposure apparatus for exposing a second object via a projection optical system with an exposure light beam having passed through a pattern on a first object, the exposure apparatus comprising:

a gas supply unit which is arranged on a side of a tip of the projection optical system between the second object and the tip of the projection optical system and which supplies a gas through which the exposure light beam is transmitted, toward an optical path for the exposure light beam; and

a gas-aspirating unit which aspirates, from the optical path for the exposure light beam, the gas which has flown from the tip of the projection optical system toward the second object.

28. (Previously Presented) The exposure apparatus according to claim 27, further comprising:

a guide member which is arranged between the second object and the tip of the projection optical system and which is provided with an aperture for allowing the exposure light beam to pass therethrough, wherein:

the gas-aspirating unit aspirates the gas which has flown through the aperture toward the second object.

29. (Previously Presented) The exposure apparatus according to claim 28, wherein the gas supply unit and the gas-aspirating unit are arranged symmetrically in relation to an optical axis of the projection optical system.

30. (New) An exposure method for exposing a second object via a projection optical system with an exposure light beam having passed through a pattern on a first object, the exposure method comprising:

supplying a gas through which the exposure light beam is transmitted, from a circumference of a tip of the projection optical system toward an optical path for the exposure

light beam in a space between the second object and the tip of the projection optical system;
and

aspirating a part of the gas which has flown toward the second object from the circumference of the tip of the projection optical system.

31. (New) The exposure method according to claim 30, further comprising providing, between the second object and the tip of the projection optical system, a gas supply member having an aperture through which the exposure light beam passes,
wherein the gas flows toward the second object through the aperture.

32. (New) The exposure method according to claim 31, wherein the aspiration of the part of the gas is performed via a space between the gas supply member and a surface of the second object.

33. (New) An exposure apparatus for exposing a second object via a projection optical system with an exposure light beam having passed through a pattern on a first object, the exposure apparatus comprising:

a gas supply unit which is arranged between the second object and a tip of the projection optical system and which provides, toward a path for the exposure light beam, a gas through which the exposure light beam is transmitted; and

a gas-aspirating unit which aspirates a part of the gas which has flown toward the second object from the gas supply unit.

34. (New) The exposure apparatus according to claim 33, wherein:

the gas supply unit has a gas supply member which is provided with an aperture through which the exposure light beam passes; and

the gas-aspirating unit aspirates the part of the gas flown toward the second object through the aperture.

35. (New) The exposure apparatus according to claim 34, wherein the gas-aspirating unit aspirates the part of the gas flown in a space between the gas supply member and a surface of the second object.